

Transport Research Foundation Fellowship Lecture
TRF003

The future for GB container terminals

Lecture of the Transport Research Foundation

Professor Michael G H Bell
Imperial College London





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Professor Michael Bell

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Michael Bell is Professor of Transport Operations at Imperial College London and Director of the Port Operations Research and Technology Centre (PORTeC). Having graduated in 1975 from Cambridge University with a BA in Economics, he obtained an MSc in 1976 and a PhD in 1981, both in the field of transportation and both from Leeds University. Between 1979 and 1982, he worked as a Research Associate at University College London, before moving to the Institut für Verkehrswesen at the Technical University of Karlsruhe as an Alexander von Humboldt post-doctoral Research Fellow. He returned to the UK in 1984 to a New Blood lectureship at the University of Newcastle. In 1992, he became the Deputy Director of the Transport Operations Research Group (TORG), becoming its Director in 1996, when he was also promoted to a Professorship. In January 2002, he moved to Imperial College London. His research and teaching interests span transport network modelling, traffic engineering and control, intelligent transport systems, and latterly ports and logistics. In 2005, he established PORTeC, a virtual centre spanning both Civil Engineering and the Business School dedicated to research in the field of ports and shipping. The centre currently has three academic associates, two visiting professors, two research assistants and six PhD students. It has won funding from the Engineering and Physical Science Research Council, the World Bank, the UK Department for Transport and various industrial sources.

Abstract

Recent GB planning applications for container terminal expansions appear to have followed a precautionary “predict and provide” approach by terminal owners. Construction, however, will be more closely aligned with actual demand and the availability of financing, leading – given the recent economic turmoil – to doubts as to where, when and indeed if the planned expansions will actually take place. This lecture will look at the future for GB container terminals and consider the potential impact of “deglobalisation” on container flows, the effect of changes in the vessel size distribution on service patterns, and the role for automation in new and existing container terminals. Future shifts in trade flows will initially be considered, in the light of a possible slowing or even reversing of the outsourcing of manufacturing to the Far East, and China in particular. This will be followed by a consideration of the impact of the introduction of larger container carriers on port choice as shipping lines change their services to make more efficient use of their vessels. The knock-on effects for GB-oriented supply chains will also be looked at. Finally, future changes within the container terminal will be discussed, giving particular attention to the role for automation.

insure shipments. Funding for new vessels has also become more difficult to raise, leading to cancellations or delays in the delivery of new vessels. Car sales plummeted due in part to the difficulty in arranging finance or its cost. The “credit crunch” impacted on the global economy leading to a marked contraction of container flows and flows of bulk materials like iron ore. As a consequence, a significant number of container, bulk and car carriers are now idle.

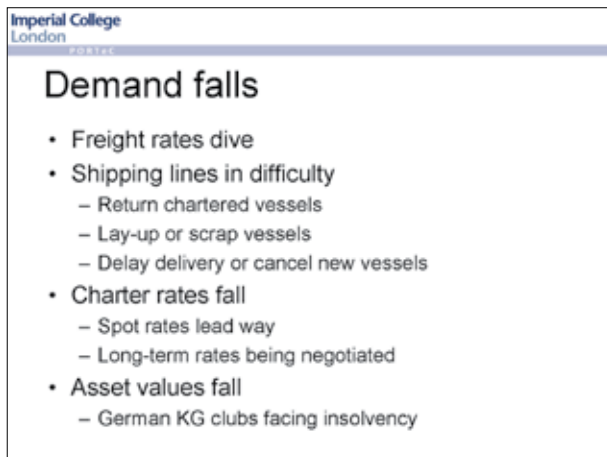


Figure 5

In the freight sector, freight rates fell significantly (Figure 5). They started decreasing gradually on the Asia-Pacific route and then a little later they dived on the Asia-Europe route. We now have a situation where many shipping lines are having great difficulty covering their operating costs and, indeed, we expect to see a number of shipping lines go insolvent in the not too distant future. Shipping lines in difficulty have been returning chartered vessels to their owners at the end of the charter periods or sometimes earlier. Vessels have been laid up or scrapped and, with regard to new vessels, the ship owners have been attempting to renegotiate contracts to delay deliveries or indeed to cancel orders altogether.

Of course charter rates fell as well. These have been led by “spot rates” – that is, the cost of renting a vessel on a short-term basis – but have now been followed by longer term charter rates. As a result, the values of vessels, in so far as vessels can be valued under current market conditions where there is a shortage of sales, have decreased significantly, leading to problems for ship owners, particularly highly leveraged German KG clubs.



Figure 6

Although maritime transport is known to be a cyclical industry, so peaks and troughs are to be expected, the current trough is deep and painful for shipping lines, ship owners and ports alike. Those interested in following the travails of the industry in detail can do so by reading Lloyd’s List. As an indication of what has happened to charter rates in the dry bulk sector, Figure 6 shows you various averages. The blue line shows that in 2007 there was the blowing up of the commodity price bubble, causing charter rates to hit very high levels in the summer of 2008. In the second half of 2008, the bubble burst and charter rates dived. They recovered a little as China started to restock with iron ore, but it is a weak rebound and there remain significant problems in the dry bulk shipping industry.



Figure 7

Developments on the vessel supply side have exacerbated the crisis (Figure 7). Cheap and plentiful money before the “credit crunch”, combined with an optimism that the rapid growth in world trade (8% in the case of containers) would continue in perpetuity, encouraged ship owners to order new vessels. There was a massive growth of orders for new and larger vessels (in fact, far more than the shipbuilding industry could deliver), leading to plans – now largely abandoned – to open shipyards on greenfield sites, particularly in China. When the bubble burst, it became clear that a significant number of those ships currently being built were surplus to requirements. Because of the lead time, unwanted vessels will continue to be delivered this year and next despite delays and cancellations.

South Korea, a major shipbuilding nation, has been particularly hard hit by the crisis in shipbuilding.

The sharp fall in freight and charter rates has been mentioned earlier. Shipping lines have been trying to save by “slow steaming” – that is, sailing slowly to save fuel – and by rationalising services. However, when the operating losses exceed the lay-up losses, shipping lines will withdraw vessels from service and park them somewhere. When the value of these vessels is judged to be less than the scrap value – and making this judgement is difficult in current market conditions because few vessels are being traded – they will be scrapped by their owners. The scrap value for ships in turn depends on the price of steel, which is currently depressed by the recession, reducing the attractiveness of the scrappage option.

The oil bubble



Figure 8

Not quite contemporaneously with the charter rate bubble, there was also a bubble in the price of oil (Figure 8) and of course, as far as the maritime transport sector is concerned, this affects bunker costs. The price of bunker peaked in 2008, leading to some interesting responses. Since the peak in bunker cost was somewhat later than the peak in demand for freight transport, some shipping lines responded by slow steaming. As there was not enough demand to fill the vessels, some of the excess capacity could thereby be absorbed by sailing more slowly. When the oil price bubble burst, bunker costs reduced significantly, leading shipping lines to review other sailing costs. For example, some shipping lines chose the longer route round the Cape of Good Hope rather than through the Suez Canal for eastbound sailings, thereby trading off canal dues against the extra bunker and time costs arising from the longer route – although, to be fair, piracy off the coast of Somalia might have played a role too. Going around the Cape of Good Hope rather than the Suez Canal adds about a week to the journey time for vessels sailing from northern Europe to Asia. As there is less inventory going from west to east, the saved canal dues exceeded the extra time, inventory and bunker costs incurred. Then, because of the falling price of oil, OPEC cut production, leading to a reduction in the demand for tankers and hence to falling tanker charter rates.

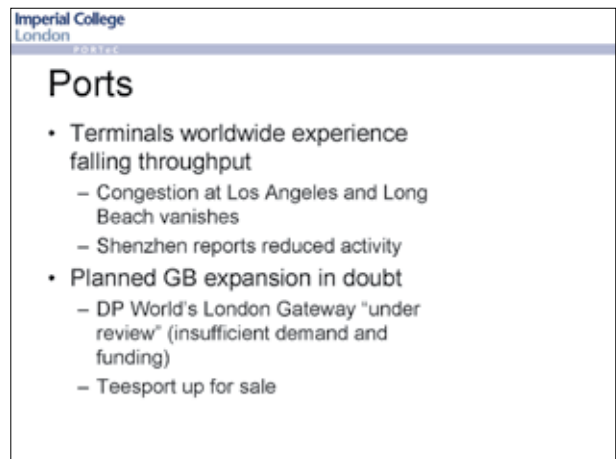


Figure 9

As you would expect, problems in the maritime transport sector feed through to ports and so container terminals worldwide have been experiencing falling throughputs (Figure 9). For example, Los Angeles and Long Beach, which are the largest container terminals on the west coast of the US, are at present distinctly underutilised. Shenzhen, a prominent Chinese container terminal, is reporting reduced activity. Turning closer to home, a lot of the expansion that has been planned for the UK, and which has gone through the lengthy process of getting planning permission, must now I think be in doubt. DP World has announced that its London Gateway project, which would see the construction of a large new container terminal and logistics centre in the Thames Estuary on the former Shell Haven site, is “under review”. This faces two difficulties: one is the lack of demand due to reduced trade flows and the other is raising the finance to build it. PD Ports, which runs Teesport, ran into financial difficulties leading to its recent sale for one Australian dollar. So the problems in shipping are feeding through to ports and, at the very least, delaying the planned expansions that have received so much publicity recently.

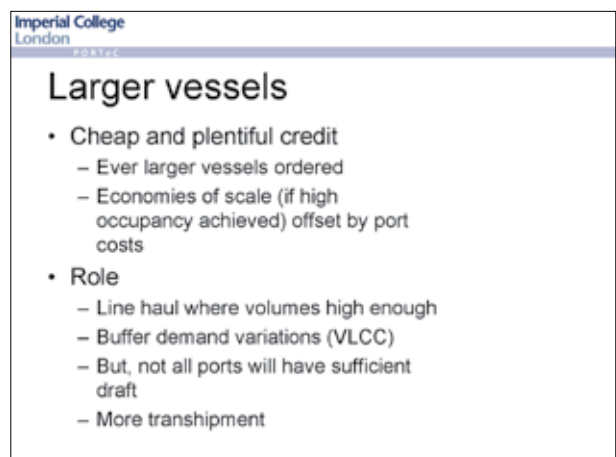


Figure 10

As mentioned earlier, at the time when there was a boom in ordering new vessels there was also a tendency towards ordering larger vessels (Figure 10). Although it was cheap and plentiful credit before the “credit crunch” that facilitated this, the economic justification for ordering a larger vessel

rests on economies of scale in shipping, offset, to some extent, by higher port costs. Irrespective of port costs, if the reduction in total transport cost per day achieved by increasing vessel size by one TEU covers the cost of inventory per container per day, then it is worth increasing the vessel size by one TEU and to continue doing so until there is no further gain to be made. Of course, the cost per vessel per day increases with vessel size, but with increasing vessel size fewer vessels are needed to carry a given number of containers. The saving in total transport cost per day arises from the economies of scale associated with larger vessels. Regarding inventory cost, vessel size does not, roughly speaking, affect the amount of inventory held at sea at any point in time but will affect the amount of inventory held on land. Again roughly speaking, each extra TEU of utilised ship capacity will add one TEU to the landside inventory. The cost per TEU handled in a port tends to go up with vessel size for various reasons. As a result, the optimum ship size will be determined by trading off the economies of scale in shipping against increasing port and inventory costs.

The role for these larger vessels would clearly be for the line haul sections of maritime transport between large transshipment ports and can only be justified where trade flows are high. The justification for ordering larger vessels was based, therefore, on projections of increasing container flows. Hence, if container flows are not increasing, a question mark arises as to whether larger vessels make economic sense. If trade flows fall then either service frequency is reduced, increasing landside inventory, or vessel occupancy is increased, reducing the economies of scale. There is another aspect to larger vessels, relating to crude oil, which has been interesting to observe. Essentially, very large crude carriers are used as buffers. As oil-producing countries are producing oil at a relatively constant rate but consuming countries have demand that is more volatile in the short term, the difference can be parked in or supplied by very large crude carriers. This buffer role for shipping does not, however, extend to containers.

Returning to the subject of larger vessels, one issue of course is that not all ports have sufficient draught to handle the largest vessels so there will have to be more transshipment. For example, containers are sometimes taken off a larger vessel and then put onto a smaller vessel that can reach some of the ports that are either not reachable by a very large vessel or for which there is no economic case for a delivery by a very large vessel.

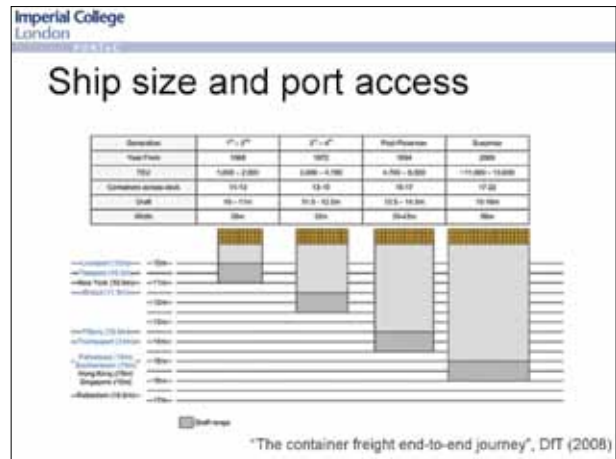


Figure 11

Figure 11 is taken from a Department for Transport (DfT) publication called *The container freight end-to-end journey*. It shows, essentially, which ports can be visited by vessels of increasing size. The point to make here is that it is only Felixstowe and Southampton that can handle the 11 000-TEU-and-above vessels. Thamesport could possibly do so, but certainly Liverpool, Teesport and Bristol are not able to handle the largest vessels. Of course, that could change; they could dredge the channels and deepen the water at the quay wall, and so on, but that would be at significant cost.

Currency realignment for Great Britain and “deglobalisation”

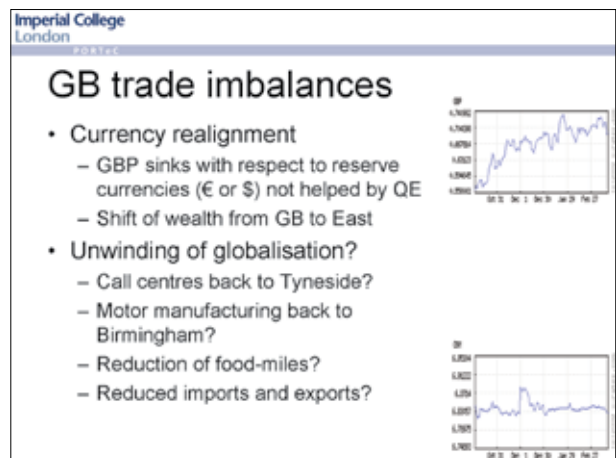


Figure 12

I think this is where my talk starts to get more controversial. Following the “credit crunch”, we have seen a significant realignment of the pound against reserve currencies such as the euro or the US dollar (Figure 12). Basically, the pound has lost something like a quarter of its value against a basket of currencies. Demand for the pound is weakened by persistent trade imbalances while the supply has been increased by “quantitative easing”. If you are a bank holding a government bond and if the Bank of England buys the bond from you, you may well be tempted to swap your pounds for a stronger currency – and so, of course, the pound goes down. The top chart in the figure shows what a dollar will buy you in terms of pounds and, at the time of this lecture, we are getting

more pence for our dollar. The bottom squiggly line shows what a dollar will buy in Chinese renminbi and the interesting thing there is that up to the time of this lecture the Chinese currency has remained pretty flat with respect to the US dollar.

At least as far as GB is concerned, this currency realignment marks a shift of wealth and costs to the East or to any country that is using a reserve currency (like the Eurozone countries) or that has a currency that is tied to a reserve currency (like China). This provides a powerful financial incentive to repatriate activities. So I think what we may observe going forward is an unwinding of globalisation. Of course, we would expect activities to return to parts of GB where they have a comparative advantage: call centres may return to Tyneside, motor manufacturing may return to Birmingham, and there may also be an increase in indigenous food production and a reduction in food miles. But I think most significantly as far as this presentation is concerned, we may well observe reducing imports and increasing exports, leading to reduced but better balanced container flows. The amount of air exported by Felixstowe would then reduce.

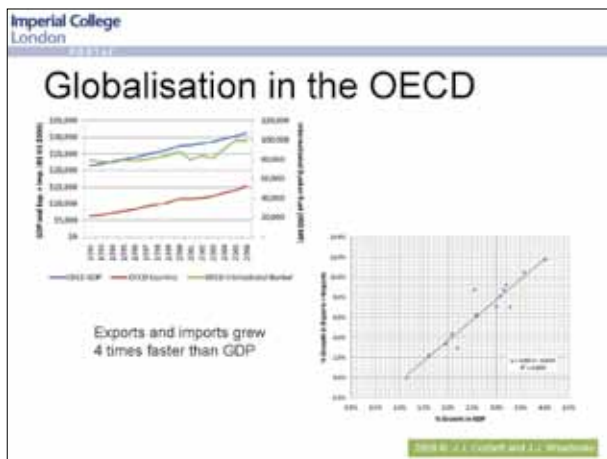


Figure 13

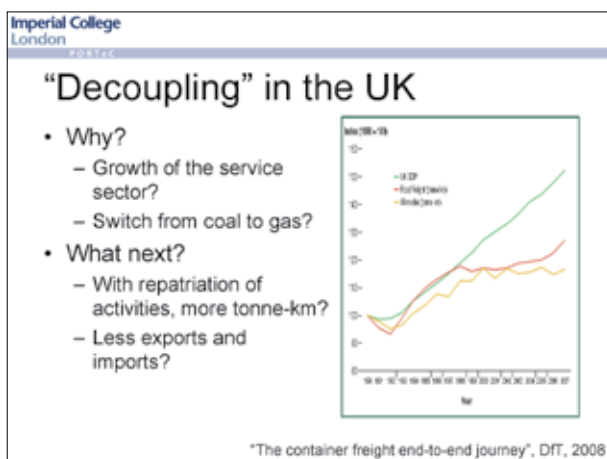


Figure 14

Figure 13 looks at globalisation up until 2006 for the OECD. In the top left-hand graph, OECD GDP is in blue and imports and exports are in red. The cost of bunkers is also shown, but that is not really relevant to the argument that I want to make here. If the growth in imports and exports (on the vertical axis)

is plotted against growth and GDP, you find the remarkable fact that imports and exports were growing four times faster than GDP in the OECD region up until 2006. The question is: Is that sustainable? Perhaps as an aside – I am not entirely sure whether this is relevant or not to the argument – in the DfT’s *The container freight end-to-end journey* report there is the rather curious graph suggesting decoupling. In green is UK GDP over the period of 1990–2007, going up more or less linearly (Figure 14). In red is road freight in tonne kilometres, which is increasing in line with GDP until about 1998/1999, after which it appears to level off and then start to increase slightly again. That is for road freight; the yellow line is for all modes.

I do not know what the explanation for this is and I would be interested to hear of any. It may be because the service sector grew significantly and accounts for the GDP growth beyond that explained by the red line, although I do not believe there was a sudden growth in service sector activity. It may be that there is something technical like a switch from coal to gas, taking coal off the road and rail network, and of course gas is in pipelines and would not appear as tonne kilometres. While I do not know why there is this so-called decoupling, I think it is interesting to speculate as to what the repatriation of activities might do. One of the effects I would suggest is that we might begin to see tonne kilometres accelerating again – in other words, we might see the red line taking off again. The other thing that may happen is that the green line will decline because of the economic crisis. I therefore think that this so-called decoupling is likely to re-couple fairly soon, but that is speculation.

Consequences for forecasts and Great Britain port expansions

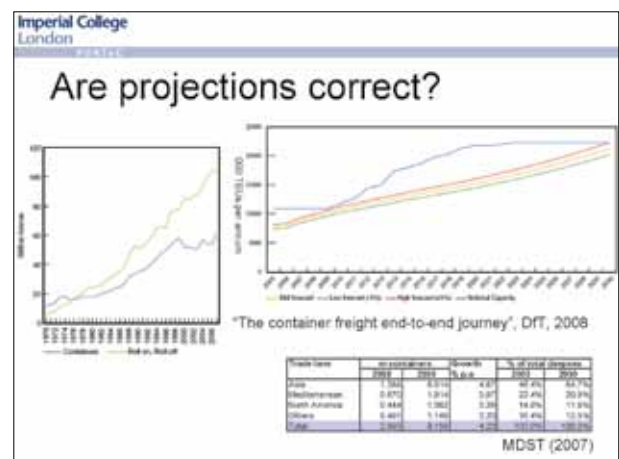


Figure 15

Looking now at the projections in Figure 15, the left of the diagram shows what has happened to container traffic and roll-on roll-off traffic, and on the right is the picture of growth taken from the DfT’s *The container freight end-to-end journey* report. It shows projections of what will happen from 2005 up to 2030: a lower forecast, a mid forecast and a high forecast in relation to a notional capacity figure. There is another projection of growth taken from an MDST study of

2007. I am not so interested in the notional capacity figure, but what strikes me is the projection of growth. I am not at all sure that this growth will actually occur as I suspect the currency realignments that we have seen will, as I have suggested, lead to a repatriation of activities back to GB. The result of rebalancing trade flows may well be better container occupancy but a fall in the total number of containers entering and leaving the country.

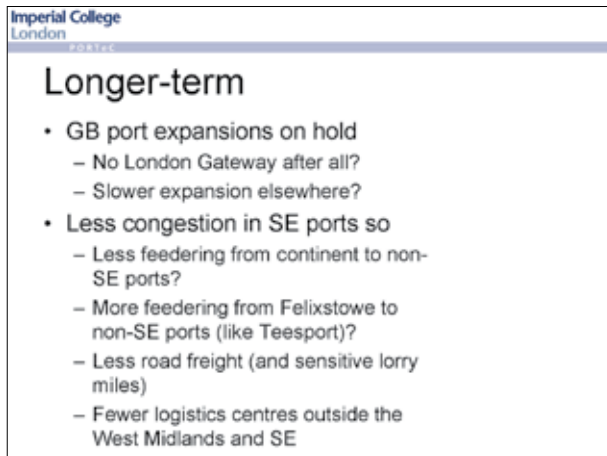


Figure 16

Looking to the longer term (Figure 16), we know already that GB port expansion plans are on hold or under review. I think it is an open question when we will see London Gateway, if at all. I think there will certainly be slower expansion elsewhere in the country where there have been expansion plans. This means, I think, that there will be less congestion in south-east ports and, therefore, less “feeder” from the Continent to non-south-east ports. With less congestion, less traffic will be displaced from south-east ports to tranship on the Continent to come across on feeder services to non-south-east ports. There may be more feeder from Felixstowe and possibly Southampton to non-south-east ports simply because there is now more capacity to tranship there. There may be less road freight because most rail freight that is generated by ports is coming from Southampton and Felixstowe and we may, therefore, see fewer sensitive lorry miles. That would be a good long-term outcome of the downturn. There may also be fewer logistic centres outside the West Midlands and the south-east. The idea of associating ports outside the south-east with nearby logistic centres may be more difficult to justify if there is less of a capacity problem in the south-east.

Role of automation

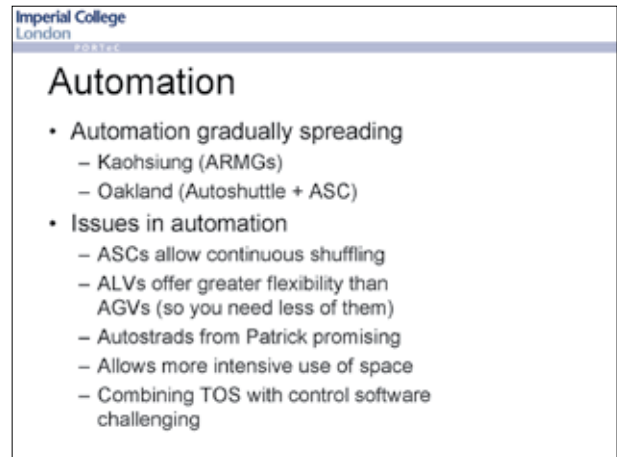


Figure 17

I will divert for a moment to a slightly different but not entirely unrelated issue: automation (Figure 17). There has been a slow but steady spread of container terminal automation. For example, Yang Ming is installing automated rail-mounted gantry cranes in its Kaohsiung terminal in Taiwan and I read recently that Oakland, California, is planning to introduce automation with auto shuttles and automatic stacking cranes.

Automatic stacking cranes are, I think, a very attractive technology because they allow for 24-hour container shuffling, sometimes referred to as “grazing”. Essentially, to get a container from the bottom of a stack to the quayside, it may be necessary to take a few containers off the top first. Likewise, to put a container on a truck to leave the port it may be necessary to retrieve it from the bottom of a stack, requiring the containers above it to be shuffled first. When there is spare time – that is, when containers are not being loaded to or unloaded from trucks, chassis or automatic guided vehicles – automation enables shuffling to continue so that those containers required next are at the top of the stack. In this way, slack time can be more efficiently used.

As regards “horizontal transport” in container terminals, originally the idea was to use automatic guided vehicles, which essentially are platforms that move the containers around. But more recently, there has been interest in using automatic lifting vehicles that can not only carry the container but can also pick it up, either from the ground or a rack, thus decoupling the horizontal from the vertical transport provided by cranes. In other words, the automatic guided vehicle does not need to be synchronised with the crane any more so the crane can carry on unloading the vessel or retrieving containers from the stack. It has been shown in simulation that running an automated container terminal with automatic lifting vehicles, as opposed to automatic guided vehicles that do not have the ability to lift containers, requires a smaller fleet of such vehicles.

A form of automation that has been introduced in Australia is the automated straddle carrier, which was developed jointly by Patrick and Kalmar. Although they are still trying to get

the teething problems out of the Brisbane system, the first terminal to install Autostrads, the technology looks attractive for terminals currently using straddle carriers.

Anyway, for sure, automation does permit a more intensive use of space. Thus, if space is a constraint, either a planning application for more space could be put in or the existing space can be used more intensively, and automation helps in increasing the intensity of space use. However, there are a few knotty issues. One of these relates to combining a terminal operating system, which determines where in the yard containers are located, with the control software for automated equipment. Terminal operating systems are provided by a limited number of suppliers – Navis from Zebra Enterprise Solutions is perhaps the best known – whereas the control software for automatic vehicles or cranes is provided by the manufacturer. Somehow, the two bits of software have to be interfaced to get the system as a whole to work efficiently. Another issue relates to labour relations. In the US, for example, strong labour unions constitute an obstacle to automation.

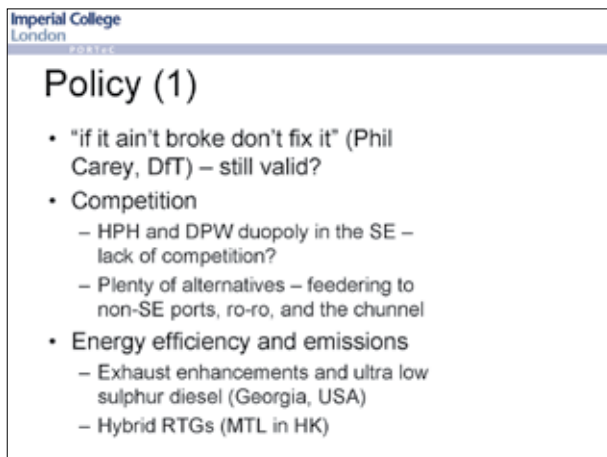


Figure 18

Turning our attention now to GB port policy, meetings with the DfT three or four years ago suggested that the position at that time was "if it ain't broke, don't fix it" (Figure 18). The issue now is, I think, whether this approach to port policy is still valid.

On the issue of competition between ports, we see dominance by a duopoly in the south-east, with Hutchison Port Holdings at Felixstowe and Thamesport and DP World at Southampton. There is therefore a potential issue of lack of competition. However, there are many alternatives to get containers to or from the south-east, so limiting the ability of the duopoly to exploit its dominance of south-east container terminals to increase charges. For example, there is feeder, mentioned earlier, from Continental transshipment ports to non-south-east ports, roll-on roll-off ferry operations to various ports, and also the Channel Tunnel.

In terms of energy efficiency and emissions, there are some interesting technical advances coming along. One can use cleaner diesel and clean up the exhausts from diesel engines – there is a move to do this in the US. Another interesting technological development I think is the use of hybrid engines, part electric, part diesel for propulsion, combined with regeneration when lowering containers or braking. For example, in Hong Kong a fleet of rubber-tired gantry (RTG) cranes that use hybrid power is being introduced. It has been estimated that hybrid RTGs will use 30% less fuel than the conventional alternative.

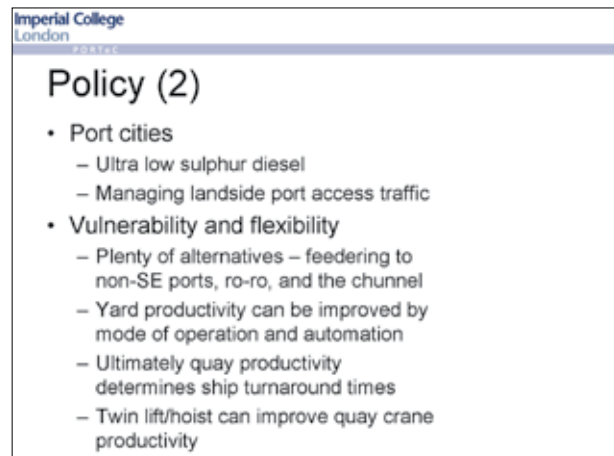


Figure 19

Regarding port cities (Figure 19), clearly using cleaner diesel is attractive and ships turning off their motors when they are berthed (referred to as "cold ironing") is another possibility for reducing emissions in the vicinity of port cities. But another important issue, of course, is port access traffic and its effective management.

Concerning the vulnerability and flexibility of supply chains, as I have already argued there are plenty of alternatives for GB despite being an island. If, for example, the Channel Tunnel catches fire, there are roll-on roll-off ferries as well as load-on load-off routes. If Felixstowe closed, there are the alternatives I have already mentioned, and so on. So I do not think we are hostage to any particular failure in the supply chain.

In terms of being hostage to bottlenecks if demand were instead to increase substantially, I think there is a lot we can do to improve port productivity. Yard productivity, for example, can be improved by changing the mode of operation and by the introduction of automation. Ultimately, we know that quay productivity determines how quickly a ship can be turned around and therefore there needs to be improvements in quay crane productivity individually or collectively. There are some technological innovations with the potential to increase crane productivity, like twin lifts or twin hoists lifting two containers, or even three containers, at once.

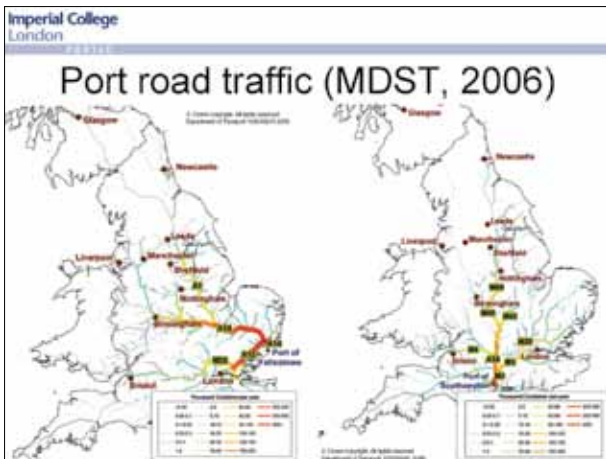


Figure 20

I have mentioned the issue of access to ports. Figure 20 shows that traffic emanating from Felixstowe and Southampton disperses fairly rapidly with distance from the port, and therefore traffic problems related to ports tend to be specific to the vicinity of the port itself.

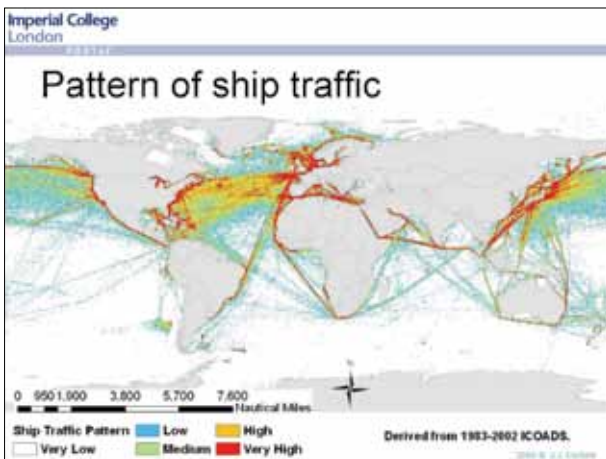


Figure 21

This is a picture of the pattern of ship traffic as it is today (Figure 21). The red highlights the channels that are heavily trafficked – the Suez Canal traffic, the Asia-to-Europe route and the Asia-Pacific route on the other side. The economics of very large container carriers depends on highly concentrated traffic on corridors. This of course creates vulnerability – for example, from piracy off Somalia and in the Straits of Malacca.

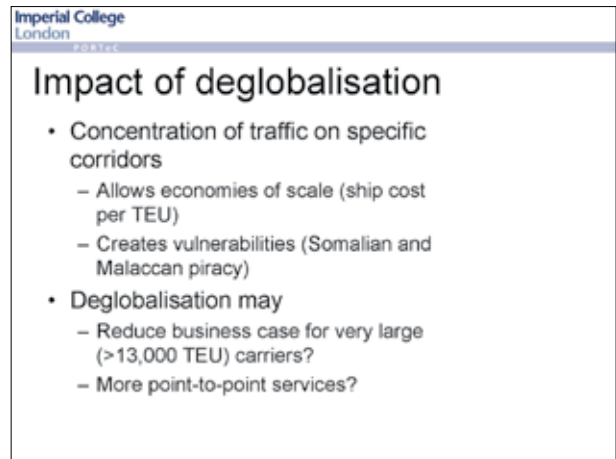


Figure 22

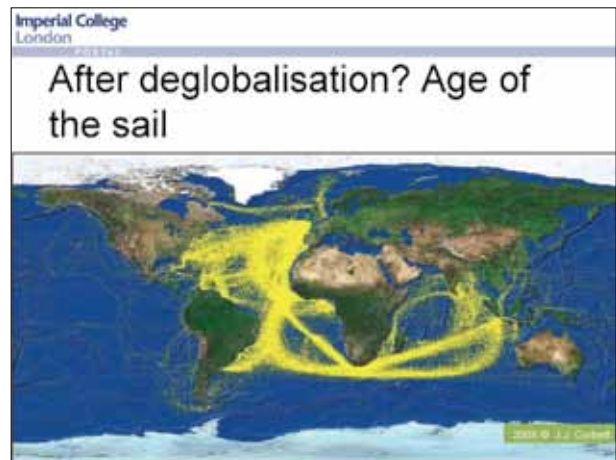


Figure 23

If globalisation is unwound, reducing the flows of containers, the business case for very large container carriers operating between hubs is also weakened. I think one of the consequences of this may well be a move to more point-to-point shipping services (Figure 22). The idea of establishing a low-cost container carrier operating direct services between secondary ports using vessels acquired or chartered cheaply, possible at the moment due to depressed market conditions, has been realised in the recently founded “The Container Company”. In the light of this, I found Figure 23 rather interesting. It comes from a 2008 publication by Corbett and shows flows as they would have been in the age of the sail. If there were the hypothesised “deglobalisation” and if the concentration of heavy flows on specific corridors were replaced by more point-to-point services, this is what the pattern of sailings might end up looking like.

Vision for the future

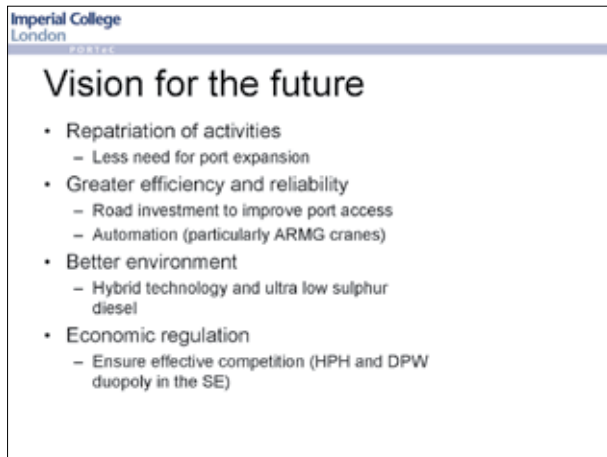


Figure 24

I will end this talk with a vision for the future. First, I think we may be in for a significant repatriation of activities to the UK and therefore have less need for GB port expansion. We can improve supply chain efficiency and reliability by road investments on the approaches to ports and, as I have argued, by automation in container terminals.

We can do something about the environment by using hybrid technology and low-sulphur diesel. While there does not appear to be a problem at present, there is a potential issue with lack of effective competition because of the duopoly situation in the south-east. The consequence of lack of effective competition would inevitably be inefficiency and higher charges unless there is effective regulation.

At this point, I would like to thank you very much for listening to me.

Discussion

Question

On your last slide, Mike, you put up access to ports and road improvements. Given what you said about the different roles of ports now, how do you think that sort of investment should be prioritised across the ports we have? I hear different arguments. Hutchinson ports would say we need more access into Felixstowe and then DP World will say we need it in Southampton, but if there is going to be more use of the smaller ports, should there be investment in those? How would you square that circle?

Mike Bell

I think, if my hypothesis of “deglobalisation” (let us call it that) is correct, what we would expect to see is that there would be a relatively bigger impact on the non-south-east ports than on the south-east ports, because at the moment one could argue there is a certain amount of displacement from south-east ports because of occasional congestion. There are no queues of vessels at either Southampton or Felixstowe, but the argument for extra capacity at Felixstowe, and indeed for London Gateway, was that they were facing capacity limits, so I think that there has probably been some displacement of container traffic via transshipments to non-south-east ports. Thus I think the case for improving access to Southampton and Felixstowe and indeed to other ports in the London area, like Thamesport and Tilbury, remains. I think it is likely to be harder to justify investments outside the south-east.

Question

You spoke about the effect on road freight. Do you have any views on the effect of the current market on rail freight?

Mike Bell

Regarding containers, most of the port-related rail freight is coming from Felixstowe and Southampton, and non-south-east ports, I think it is true to say, have greater difficulty justifying using rail or indeed accessing rail. I do not think that current economic developments are going to have much impact on rail freight because I do not think most of the impact on ports will fall on Southampton and Felixstowe. So I suspect that rail freight is more secure than road freight, although the current crisis will doubtless see a general dip in freight transport.

Question

The US seems to be entering a more protectionist phase. I do not know if that is real or whether they are just expressing what everyone else is thinking. But I was wondering how dependent we are on US imports and whether you see the intercontinental aspects reducing and perhaps the European aspects continuing in terms of trade.

Mike Bell

Well of course that is another reason to expect “deglobalisation”. If, as a result of bailing out banks and other industries, we are going to see increasing protectionism, that just strengthens the argument. I was basing my argument mainly on the pound having gone down significantly against

reserve currencies and I guess staying down for a prolonged period. I think the sorts of things you have mentioned are just going to reinforce the argument that I have been making in terms of the repatriation of activities, reducing imports and exports, and the consequent impact on ports. Did I answer your question?

Questioner

It was how much is European, how much is US, how much is Asian?

Mike Bell

I do not have figures at my fingertips, but the main trade is on the Asia–Europe route and we know that this has been significantly impacted by the current economic developments. Freight rates are rock bottom at the moment on that route. I have not seen any recent reports on the freight rates between the US and the UK, but I would imagine that the UK is not importing as much from anywhere, so I have no reason to believe that it is very different on that route.

Question

A question on your hypothesis that it is mainly the pound and the change in exchange rates that are causing the problem. How long do you expect the pound to stay down and for the “deglobalisation” as a consequence to continue?

Mike Bell

Let us put it like this – I do not see any particular convincing reason for the pound to go up in the near future. The incentive to repatriate activities will therefore remain for some considerable period of time, I would imagine. If and when the economy starts to recover, and one can assume that it will at some point, then I would imagine that there will be a considerable incentive not so much to move activities that do not exist into the UK but to shift the centre of gravity for manufacturing and service sector activities. If it becomes much more economical to make cars in the UK than on the Continent, then I am sure more of them will be made here, but I think we are talking about quite long periods. I think we could be in for quite a substantial economic change and a rebalancing in the UK economy, which, having dispensed with most of its manufacturing base, finds itself in an unsustainable situation. There has to be a rebalancing, which will involve a return of some manufacturing to the UK and it is a realignment of currencies that will, I believe, prompt this to happen.

Question

I was interested to hear your views on what type of government incentives there are to promote British ports for various carriers. There has been some recent publicity, for example, about lighthouse dues being increased significantly and how is that going to affect people’s decisions to call at UK ports?

Mike Bell

I am aware of this issue – but I do not have much to say on it. Clearly, I suppose, the broader issue is to what extent do we want to encourage transshipment activity in the UK? I guess,

if my “deglobalisation” hypothesis is correct, capacity will be freed up in container terminals, which may well then be used for transshipment activities.

Question

How does what happens on the Continent then affect that, since the Continental ports are not standing still while all this is happening either, are they? So if there is more transshipment going on at the European side, how does the UK then compete with that given that, presumably, they are currently better placed to do it?

Mike Bell

I think there are two issues there. One is that transshipment is very footloose; it will happen wherever it is cost effective to do it. On the other hand, of course, ports like Rotterdam do have scale advantages. Clearly, we are not immune to what goes on at Continental ports. A slightly different question, which I think is quite interesting, is the extent to which Continental ports will be affected by the development of Italian ports and alternative routes to Central Europe being developed through Italy that are potentially significantly faster than sailing round Gibraltar and going to Rotterdam or Antwerp or Hamburg. Indeed, I think the structure of container flows may well change significantly for all sorts of reasons over the not too distant future. I think we are not in a stable situation at all.

Question

I just want to add two or three comments about issues that may be considered in forecasting the future of ports, one of which is the port investment portfolio. As we know, in the last ten years the ratio of earnings to price for ports has been really going up. For instance, I think DP World bought CSX Terminals, which is a main US container port facility, back in 2000 and the price-to-earnings ratio at the time was 14. Then three years ago, when it bought P&O Ports, the price-to-earnings ratio was 25. There are many examples in which private equity firms, as shown in some portfolio aspects of AIG and others, have interesting reports.

Now, if for instance you look at the huge portfolio of Dubai World, the investment arm of the Dubai Government, the most profitable part of it is Dubai Ports because the value of the other arms, for instance relating to real estate and so on, are falling. So the interest in ports is still there somehow. The same is true if you look at AIG – it is still holding onto its portfolio. So investing in port facilities is still a good investment, especially with today’s problems, because we probably do not look at high returns but at least steady and reasonably good returns over a long period.

The other aspect I want to talk about is the shifts between shipping markets and I would like to cite a similar experience to that of the UK situation with the Asian turmoil back at the end of the 1990s, especially in Malaysia and Korea and so on, because they had at the time a devaluation of their currencies vis-à-vis the US dollar. We found that in fact the container port activity in these countries did not decrease, partly because there are shifts in the markets. For instance, some break bulk products have been shifting into the container market

because of the relationship between container freight rates against break bulk freight rates, and so on. In addition, the intensity or the rate of penetration of containerisation has increased.

One final comment, and I am probably going to be a little bit controversial about UK ports policy. It struck me that in the UK there are two extreme forms of institutional ownership for ports. We have trust ports and we have private ports. In no other countries are there totally privatised ports, but we do not have a regulatory authority. You may argue that markets work by themselves but we do need some sort of market regulation in the port sector, especially as we have these two main extremes of ownership.

Mike Bell

I obviously agree with what you have said. When asset values go down, as they have been recently, that is going to open up investment opportunities if you can raise the funds to make the investment. Regarding using containers for break bulk, there was a brief period, was there not, when containers were also being used for bulk commodities. There are opportunities for using containers that are not conventional, as it were.

Question

You talked about hybrid technology and better environment. I think you were referring to the actual port automation equipment and so on. Were you referring as well to the actual powering of the ships?

Mike Bell

No, I was thinking actually of rubber-tyred gantry cranes, RTGs, and the potential to use regenerative technology.

Questioner

What is the potential for carbon reduction if these technologies are implemented, and how significant is that compared with the power needs of ships going across the ocean?

Mike Bell

I gave the figure for RTGs being able to save something like 30% of fuel through hybrid technology, and presumably in part that comes from regenerative techniques. When a crane is lifting you use energy, and when it is lowering you have the opportunity of generating electricity. I think hybrid technology in the context of cranes makes an awful lot of sense.

Question

Freight movement today is very much influenced by financial markets and financial difficulties and the effect on trade routes and so on. I suspect if we had had the same presentation two years ago there would have been much more about the political influences and security influences on the way that ports operate and the sheer volumes of trade that go through them. Have things changed so much that those influences have just been swamped? Have they gone away or why were those aspects not in your talk at all today?

Mike Bell

Certainly security issues have not gone away and PORTeC has been looking at security issues in ports. I just did not talk about them but I take the point that, as you say, two years ago this talk would have been quite different. But I think recent developments have been out of the ordinary and do, I believe, have long-term consequences. Of course, maritime transport is highly cyclical and subject to large fluctuations, but this is a particularly large fluctuation with potentially longer term implications for trade flows. At least that is my hypothesis – I may be wrong of course.

Dr Susan Sharland, Resident of the Fellowship

Thanks, Mike, for an excellent talk, it has been really interesting. I have learnt a lot tonight, and I think I have been challenged more than I expected. Clearly, we are all going to be challenged rather more in the future, particularly those in the port and shipping industries. I would like to come back in two years' time to hear Mike's view of the industry then – that would be really interesting. My thanks again.

References

Department for Transport (2009). *The container freight end-to-end journey: analysis of freight through UK international gateways*. Accessed 25 March 2009. Available at <http://www.dft.gov.uk/about/strategy/transportstrategy/tasts/userexperience/containerfreight.pdf>

Recent GB planning applications for container terminal expansions appear to have followed a precautionary “predict and provide” approach by terminal owners. Construction, however, will be more closely aligned with actual demand and the availability of financing, leading – given the recent economic turmoil – to doubts as to where, when and indeed if the planned expansions will actually take place. This lecture will look at the future for GB container terminals and consider the potential impact of “deglobalisation” on container flows, the effect of changes in the vessel size distribution on service patterns, and the role for automation in new and existing container terminals. Future shifts in trade flows will initially be considered, in the light of a possible slowing or even reversing of the outsourcing of manufacturing to the Far East, and China in particular. This will be followed by a consideration of the impact of the introduction of larger container carriers on port choice as shipping lines change their services to make more efficient use of their vessels. The knock-on effects for GB-oriented supply chains will also be looked at. Finally, future changes within the container terminal will be discussed, giving particular attention to the role for automation.

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